Laboratory Notebook, Cat. 1176

This notebook contains only a few dated entries, covering the period April 1873-November 1874. It is entirely by Edison and relates to telegraphy. Pages 1-55 contain notes and drawings of Edison's and other inventors' telegraph devices. They may have been intended for use as illustrations to accompany Edison's essays on telegraphy and electricity (see NS-74-002, Unbound Notes and Drawings). There is one dated entry (page 53) for April 17, 1873. Pages 57-63 contain notes and drawings on duplex telegraphy dated September 10-12 and November 2, 1874. Pages 64-66 contain Edison's drawings and notes on what Ezra T. Gilliland remembered, probably in 1875, about H. Nicholson's work on multiple telegraphy during the early 1870s. The book contains 320 numbered pages.

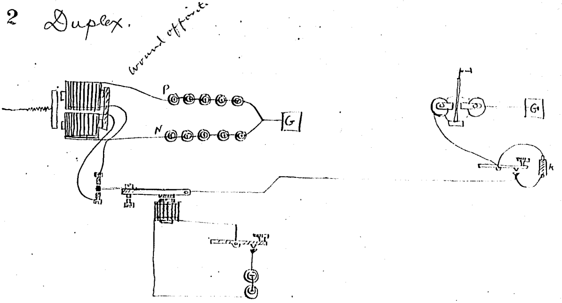
Blank pages not filmed: 67-320.

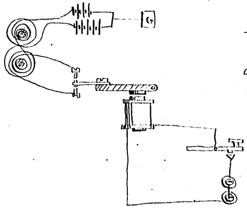
Duplex.
Repeater
Fac Similes
Dot & Dash Chemical "Autos"
Magnetic autos
Telegraph Inductive & discharge Currents.
Printing Instruments,
Transmitters for do,
Perforating Machines.
Relays
Sounders.
Morse Recording insts,
Movements,
Application of Magnetism
" " Electricity
Mechanical Electric Movements
Magneto Telegraphy
Induction Coil Telegraphy
Contracts
Batteries,
Novel Connections,
Manipulations novel,
Electromagnetic Engines

Duplex. Stearns—get copies Patents =
" Farmer " " " Extension & Reissue,
" Siemens & Halske—Kramer, get copy Telegrapher giving description =
Edisons as shown in Telegrapher
Mention Farmers Clockwork Double Trans
" Edisons Magnetical do same principle

Result Boston Experiments
Have Double transmitter Article in Dub, Schellen & Blavier Du Moncel Translated =
Edisons No. 1 as in Telegraph
Edisons No 2 Vibratory
Mechanical Equalizer.
Edisons No 3 Shunt with Rev battery
" No 4
on single relay
Reverse Current one & increase & decrease other =
Double trans Chemical—
Where in Connection
~~and~~ Condenser application by Stearns and other means such as a Condenser of a double Coil, no Condenser but Extra Coil on relay to take induction also to Shunt Duplex relay with water Resistance =

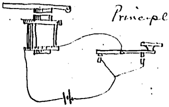
2 Duplex.


wound opposite
P
N
G
L
G
k

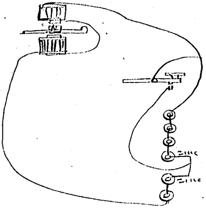


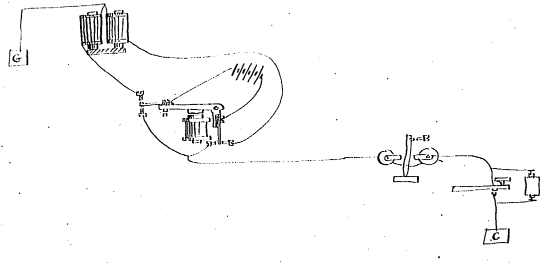
Mem you Cannot receive a Current through an Electro Magnet without opening it.

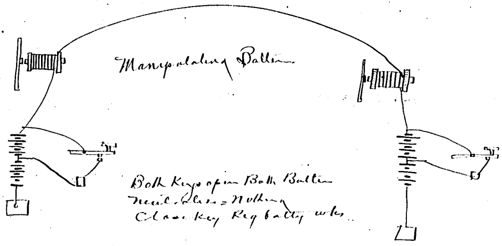
yes but you can ~~make~~ let it open if you fix your Sounder as for Quad"


Principle =

Reversing a Battery without ~~mech~~ mechanism
a Morse Key in a Circuit

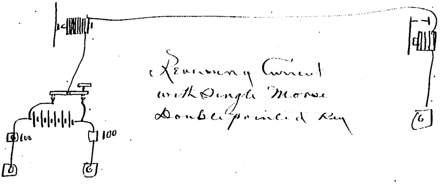




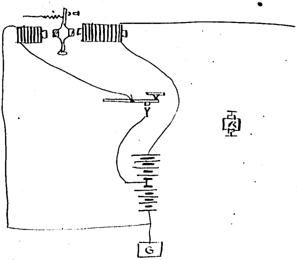


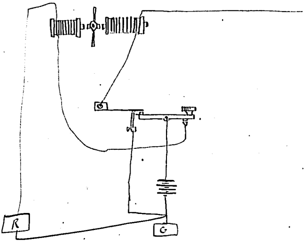
Manipulating Battery

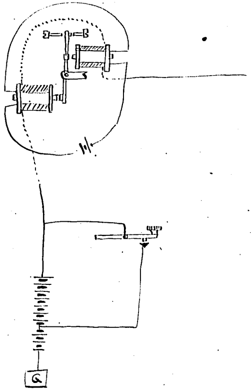
Both Keys open Both Battery
neutralize = Nothing
Close key Reg battery wks.



Reversing Current
with Single Morse
Double pointed Key


Y
R
G


R
G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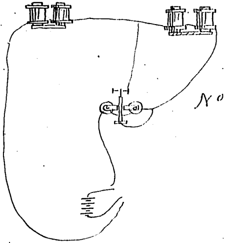
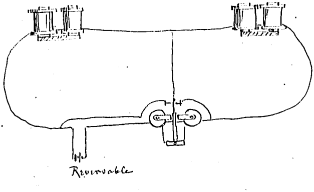
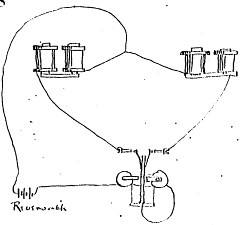
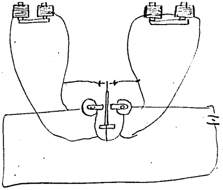
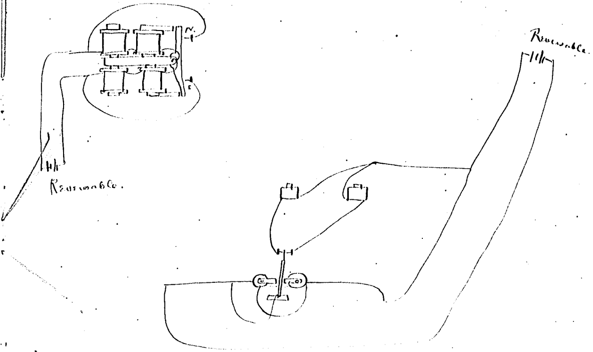
Polarized Switches

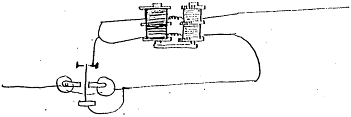


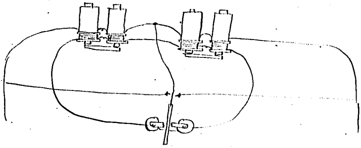

Reversable


Reversable

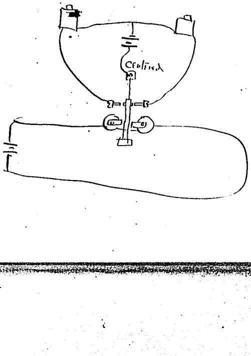


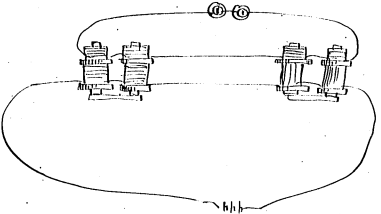

N.
S
Reversable.
Reversable.





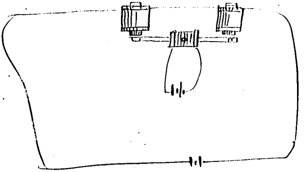
Polarized Relay worked by induction from Extra Coil.
The direction of the current generating right induction to select.



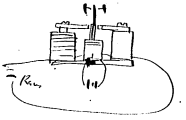


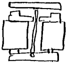
Reversable.

Edison

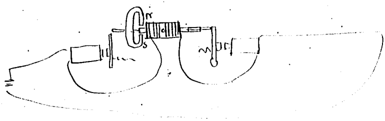


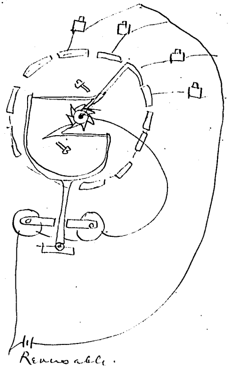
Reversable



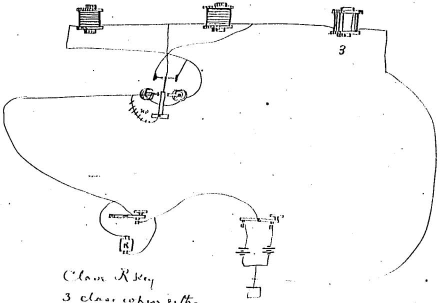


Lock



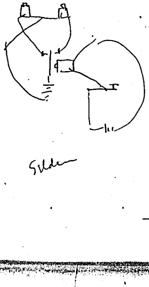

Removable.

3 motion one wire.

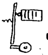


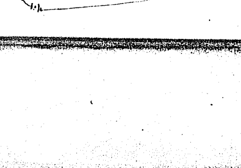
Close R key

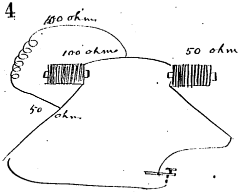
3 close when either
Rev Battery on



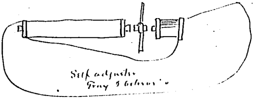
Gilder



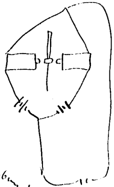



150 ohms
100 ohms
50 ohms
50 ohms

Equalizing unequal magnet.

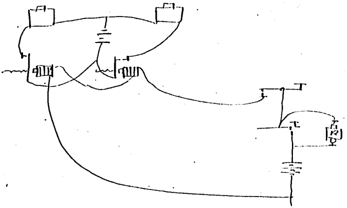


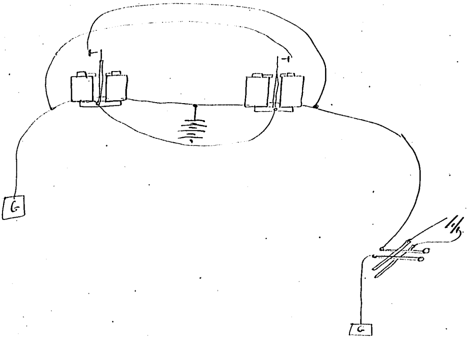
Self adjuster
Gray & Gibson's

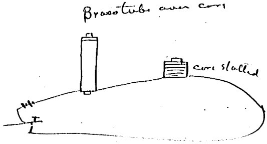


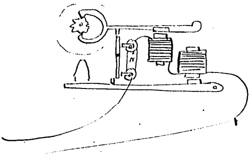
Duxbury & Roberts self adjuster

get cut of Durant's self adjuster

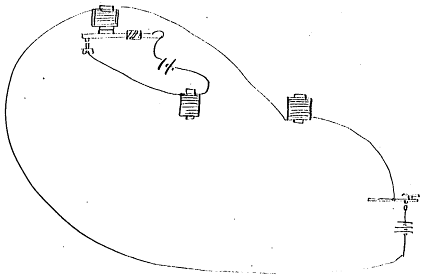

R

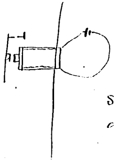

G
G

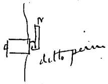

Brass tube over core
core slotted



Residual

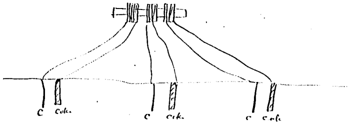




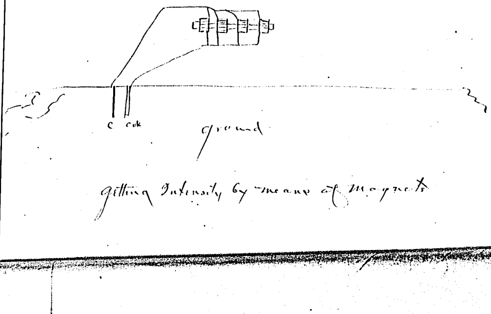


slight "op" current to make magnet
discharge quick

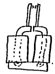
Explain about Small Type Wheels
advantages over large wheels used
before they were introduced


C
Coke
C
coke
C
coke

Ground Battery mode of intensifying

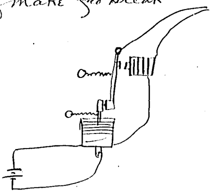

C
cok
ground

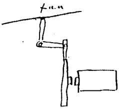
getting Intensity by means of Magnets

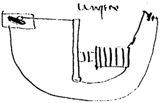


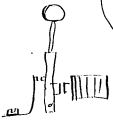
Relay with no armature

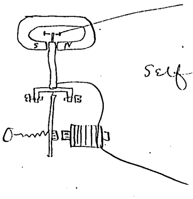
Self make and break



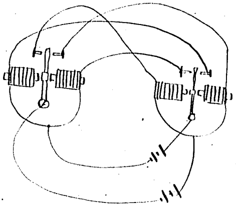




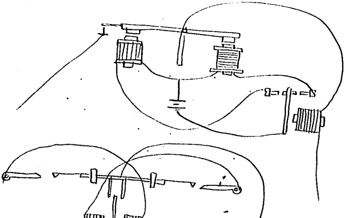


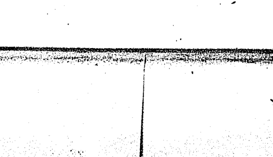


Self make and break

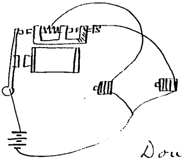


Self actor. Slow & steady

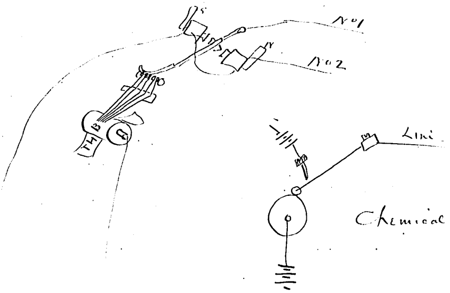


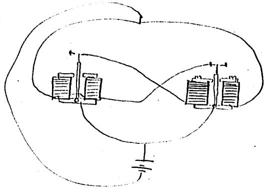


McCrackens alternating Battery =
Edisons Ink Recorder -

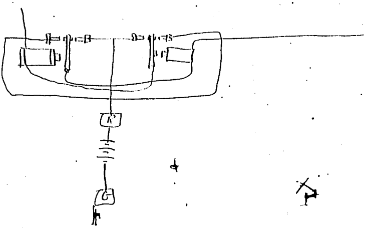


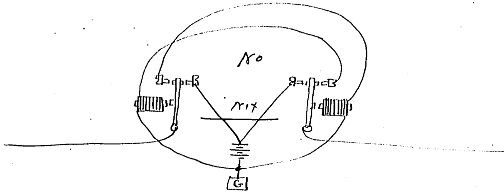
Double movement one closes first or weak current one strong ckt wk both -

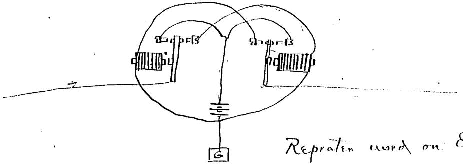

No 1
No 2
Line
Chemical



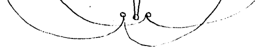
Movement



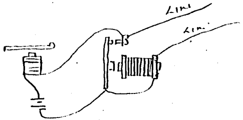


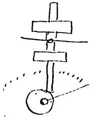


Repeater used on Europe
Lines



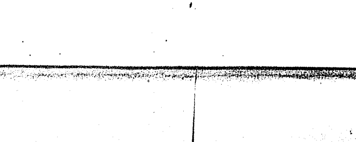
Edison Button Repeater



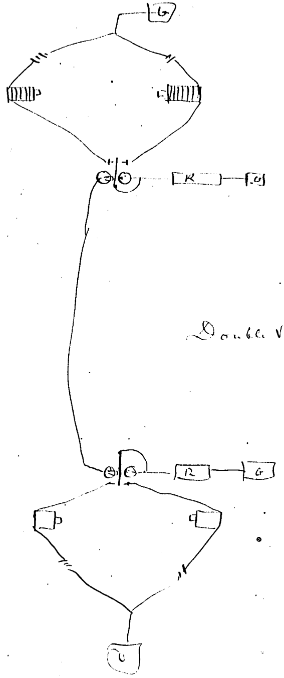


Receiver measure

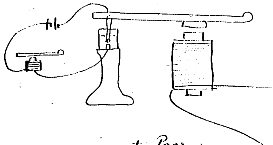
Mention Sternlinge air magnet



Movement.



Double Vibrating Trans



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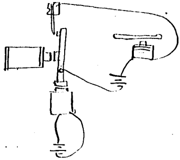

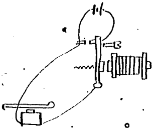

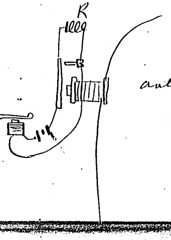

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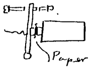
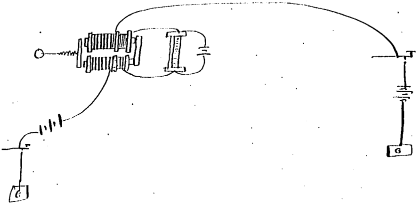
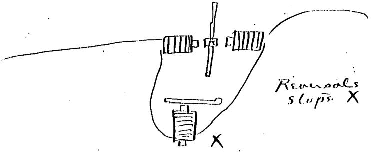
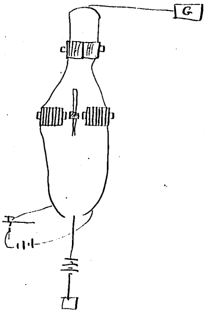






Reversals
stops. X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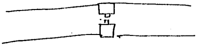
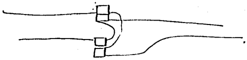
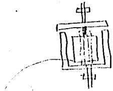
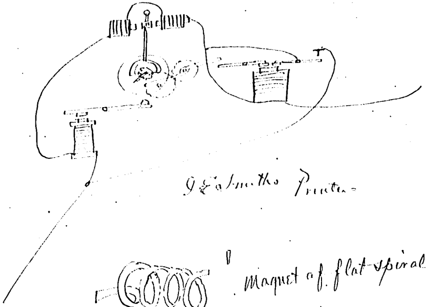


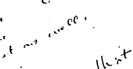




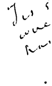
Wesmans Magnet applied to Gallaghers Printer.



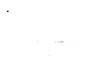
G & Smiths Printer



Magnet of flat spiral



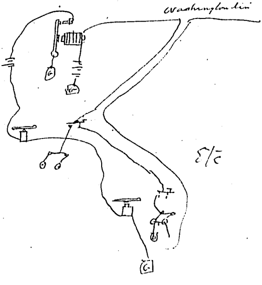
Cobels Magnet.

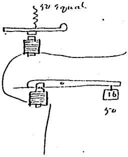


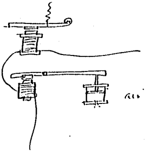
Edison Double Solenoid & Electro.

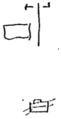
Dont Cover wire
so much leave
1/2 bare just as well.

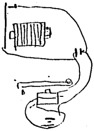
Its said that smooth
wire same size weight etc
Resistance much less than rough.

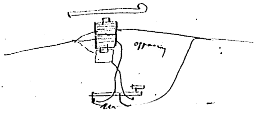

Washington line
G
G
E/C
G


50 equal
16
50


an

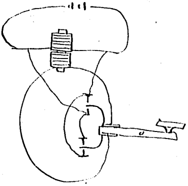


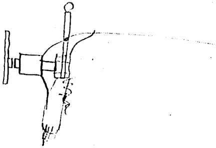


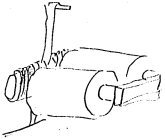


Repeaters

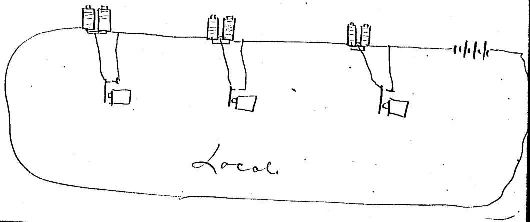
Hix No 1.2.
Milliken
Farmer
Popes Book Edison at Ind a Mem
several Burnell.
Gray & Barton,
Clark
Varley
European
Face.
Haskins
& all Edison can get

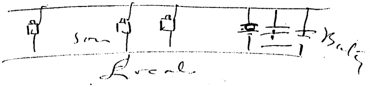


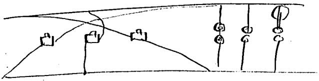




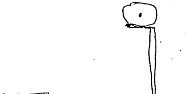
No iron

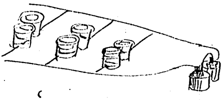


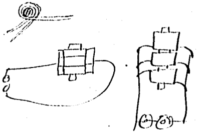

Sim
Local
Batty

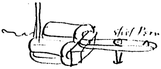


The best form self closing key probably attachment small device which would Keep points away when key operated but close in few seconds

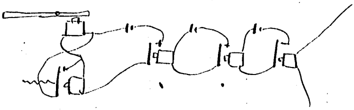


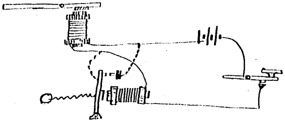


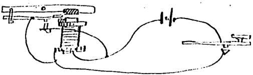


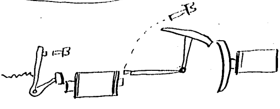


M.o

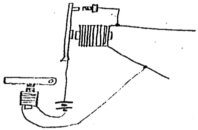


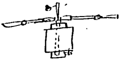


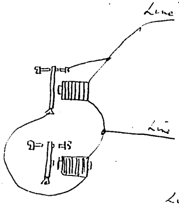


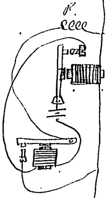


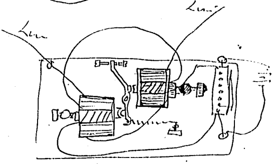
Tremendous Battery decompose water on
insulators makes line ok =

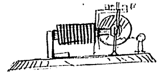


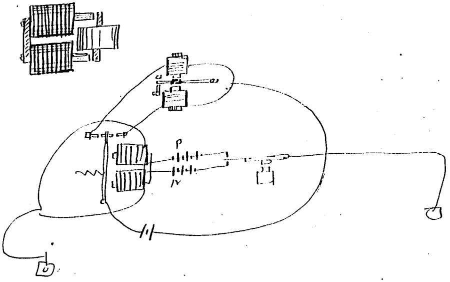


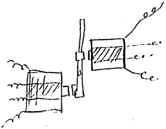

Line
Line

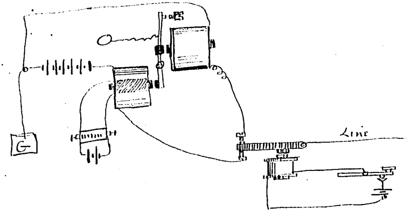

R.

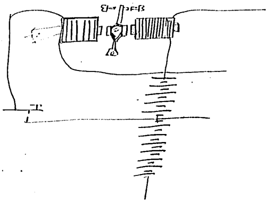

Line
Line

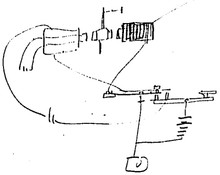


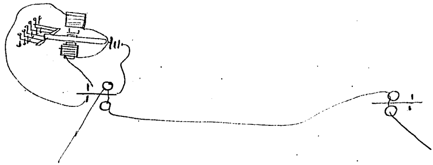

p
N

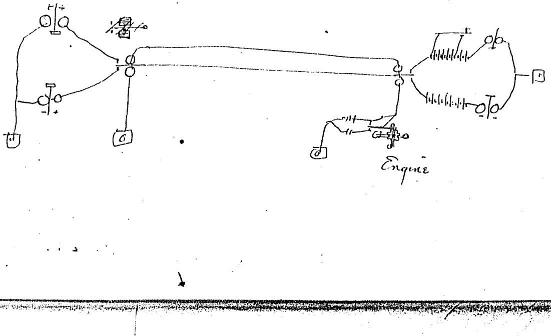


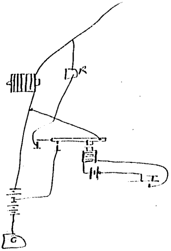

G
Line



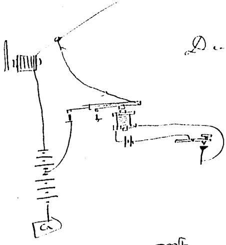





G
Engine



Duplex



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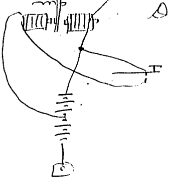
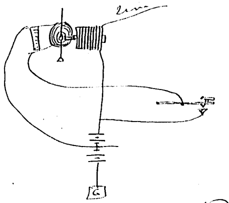
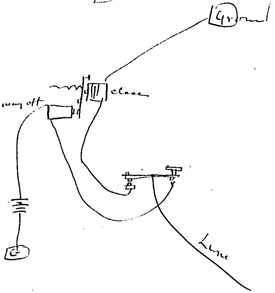
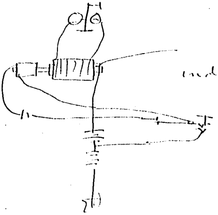


Duplex

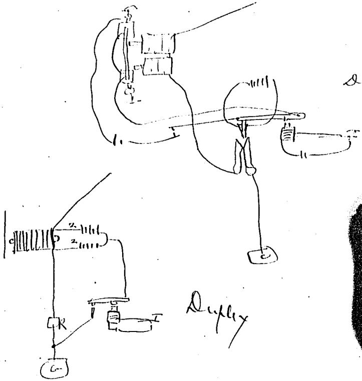
Duplex




Ground
way off
close
Line
G



induction Duplex



Duplex.

Duplex

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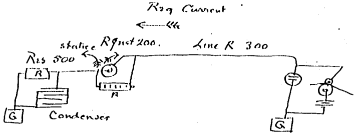
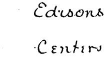
Edisons system of Cables. working by Centers of resistances and static accumulati

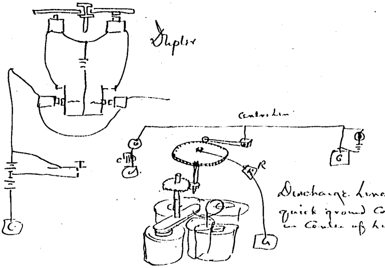

Req Current
statice
R Inst 200.
Line R 300
Res 500
R
R
G
Condenser
G

This system gives perfect work between N.York and Washington at 1600 words per minute.

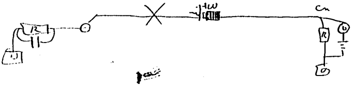
Experiments to be tried to lessen the resistance of the artificial line —

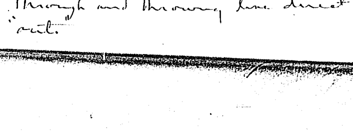


Still Later 3180 words per minute readable =

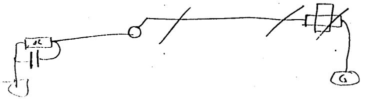

Duplex
Centre line
c
G
R
G
C
G

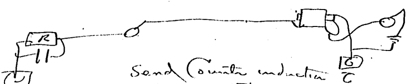
Discharge line by quick ground contact in Centre of line



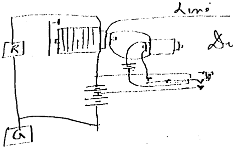

R
G
R
R 2
R 2
R
G
R
G

Repeating chem telegh to get morse signal through and throwing line direct when "out."

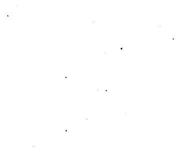


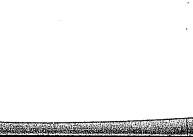

induction coil
R
G
C

Send Counter induction
return static

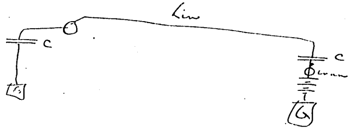


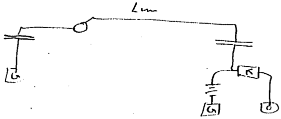
Duplex new static

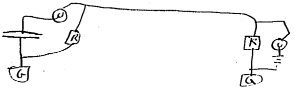


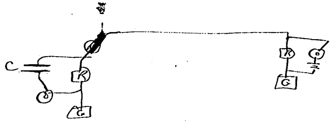


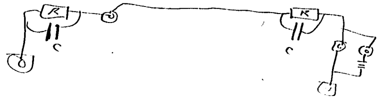
Duplx static

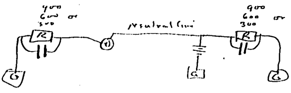

Line
C
C
Current
G
G

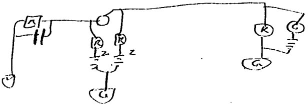

Line
G
K
G

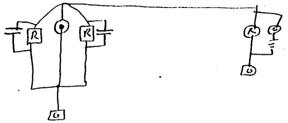

R
G
K
G

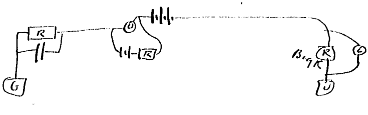

C
K
G
K
G

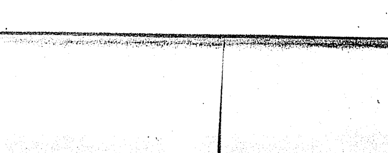

K
C
K
C


900
600 or
300
Neutral line
K
900
600 or
300
K
G
G
G


K
K
K
z
z
G
K
G



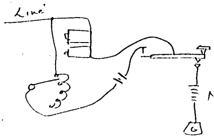

R
R
G
Big R
R
G
D

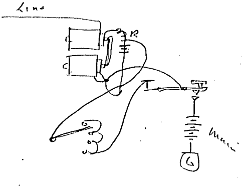


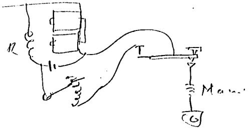
Shunted or reverse
battery stop
struggle in action

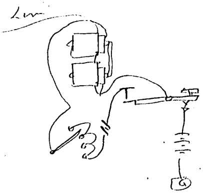
Escape compensated Relay

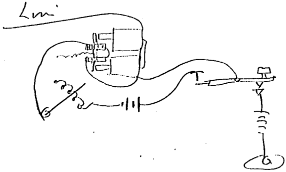
No 1

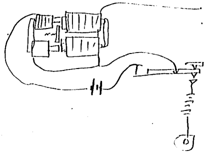

Line
T
Main
G

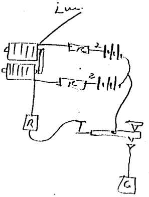

Line
R
T
Main
G

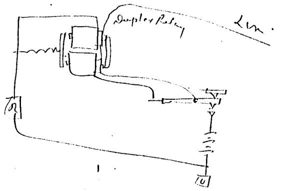


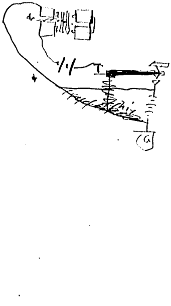


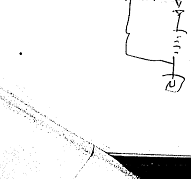


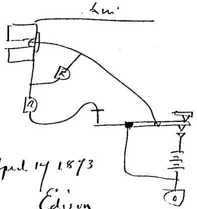

Lin
T
V
G


Lin
2
2
R
T
V
G


Duplex Relay
Lin.
R
V
G


T
G

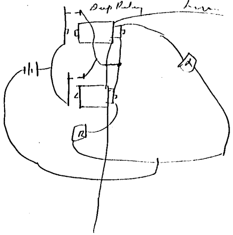

Lin
R
T
insulated
V
G

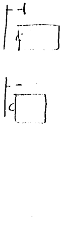


April 17 1873
Edison

Duplex

Same drawing


Dup Relay
Line
R
R



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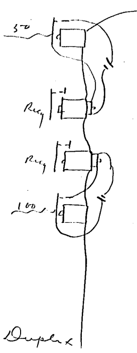
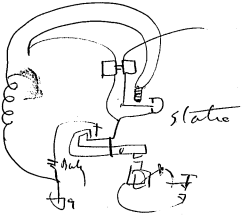
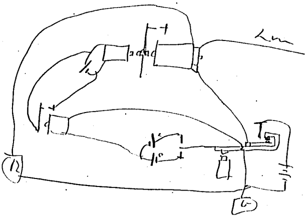
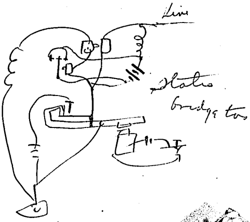

Line
50
Reg
Reg
100


Static
Baty
9

Static in Reg Duplex

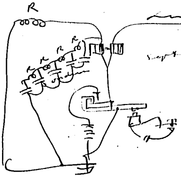



Line
Static
bridge tors

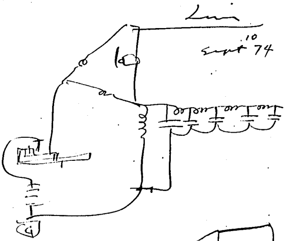
[LEFT PAGE IS BLANK]

Entered Sept 10, 74

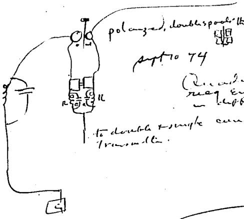
Best arrangement for static



Sept 10 74



Sept 10 74

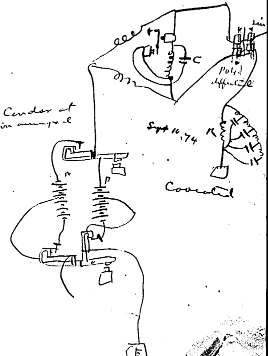


polarized, double spool rly

Sept 10 74

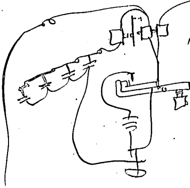
Quadruplex, Condsr at rec end shown arranged in differential

to double & single current Transmitter.


Line
C
Polzd differential
R
P
P
F

Sept 10, 74

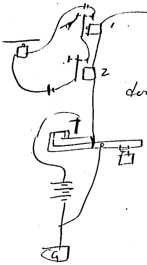
Corrected



Duplex Sept 10 74.

Sept 10. 74.

~~[illegible] conductor~~ Duplex which is neither differential or bridge.

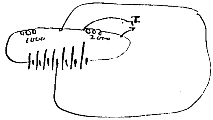


no work

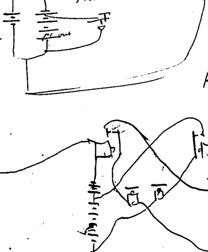
dont look as if it worked

Problems.

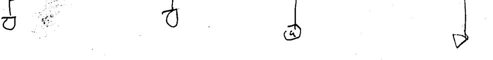
Reversing with single batty Morse key



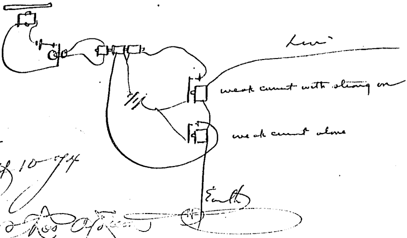
also.



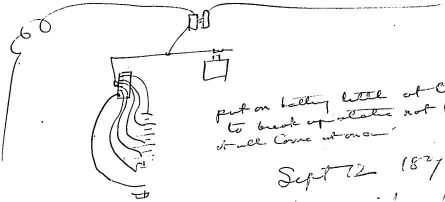
Repeater



Transmission with the same direction


Line
weak current with strong on
weak current alone
Earth

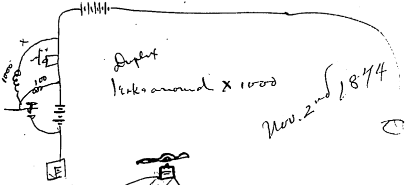
Sept 10 1874



put on battery little at times to break up static not let it all come at once

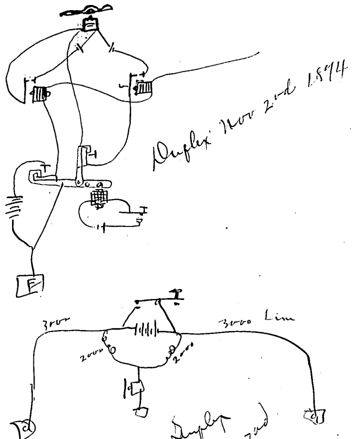
Sept 12 1874

Edison

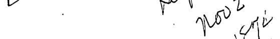


Duplex
Jerks around x 1000

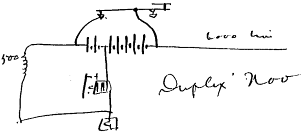
Nov. 2nd 1874



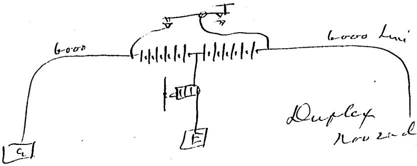
Duplex Nov 2nd 1874


3000
3000 Line
2000
2000

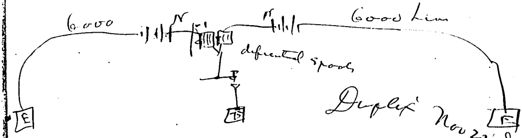
Duplex
Nov 2nd
1874


500
6000 line
G

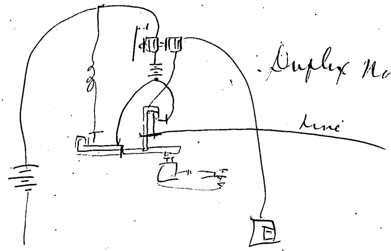
Duplex Nov 2nd 1874.


6000
6000 line
G
E

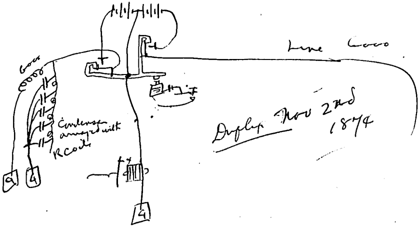
Duplex
Nov 2nd 1874.


6000
N
N
6000 Line
differential spools
E
E
E

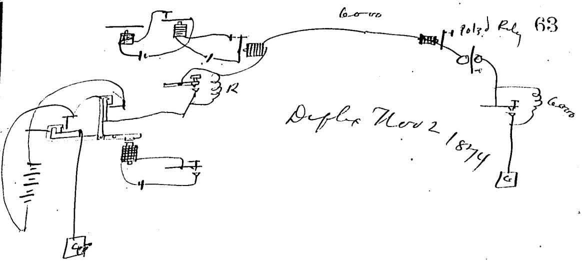
Duplex Nov 2nd 1874



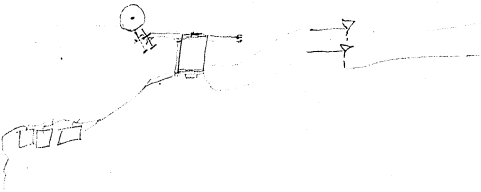
Duplex Nov 2nd 1874


4000
Condenser arranged with R Coils
Line 4000
2
4
4

Duplex Nov 2nd 1874

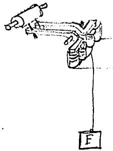

6000
Polzd Rely
R
6000
G
G

Duplex Nov 2 1874

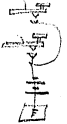


Nicholson

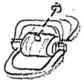
Exhibited
about that
time

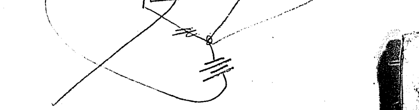


Sept 1870



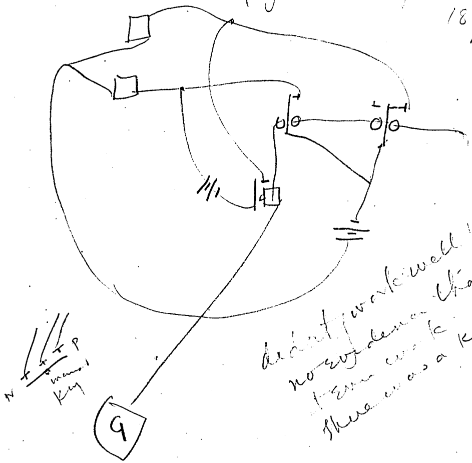
Came to Gilliland about this time to have
1 make a two pen register, like this
G, tells [illegible] [illegible] it be [illegible] [illegible]
& says you [illegible] use this & make [illegible] ick
in 1st wire —





[RIGHT PAGE IS BLANK]

This is ~~the~~ idea given m
by Gilliland given near
1870



didnt work well [illegible]
no evidence that
even work
there was a kick

Commenced the Duplex
idea, [illegible] Exhibition
of 1873.